

National Newsletter: All Sciences including Agricultural and Horticultural Science

Information and resources for middle leaders in secondary schools | Term 2 2013

Greetings to you all, Kia ora, Kia orana, Fakaalofa lahi atu, Malo e lelei, Talofa lava, Talofa ni

Term 2 brings new challenges as students in Year 11 to 13 begin to settle into their Level 1, 2 or 3 Science learning. Those who have achieved little success in term 1 are at risk of becoming disengaged from their learning. As science teachers it is important to consider this and begin this term's lessons with an engaging activity that brings together both thinking and doing in an interesting and challenging way for your students.

The National Science Coordinators Kate Rice and Mike Stone have encountered some innovative and engaging ideas in the workshops offered across the country. For example:

- Using the context of hunting to bring together learning at Level 1 Science, developing concepts from Living World and Physical World, and leading to assessments using Science 1.10 and Science 1.3.
- Using boats and boating as a Level 1 Science context to develop learning assessed by Science 1.1 and 1.7.
- Using cement as a context for learning in the material world. This included a visit to the local cement works and the making of lots of concrete using different cements and proportions – and the students found out that more is not necessarily better!

Supporting local clusters

The science facilitators are continuing to support local clusters to develop a network of teachers in the sciences. The clusters have a focus on sharing resources, discussing latest research updates in sciences and can also develop assessment tasks around local contexts. If you would like support to establish a local cluster, focused generally on science or on one of the specialist areas, contact the regional facilitators from your region.

Specific workshop focus for terms 2-4

Science workshops for the rest of 2013 will concentrate on building teaching and learning programmes based on the New Zealand Curriculum at Level 1 that address the needs of students who previously were catered for by Science unit standards. Selected schools have been invited to participate in these workshops by local Ministry of Education Senior Advisers.

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More ideas about formative assessment

"Assessment and learning are two sides of the same coin, for when students engage in assessments they should learn from those assessments."

National Research Council, *National Science Education Standards*, (Washington, DC: National Academy Press, 1996) pp. 5-6.

Evidence shows that simply teaching students the 'right' ideas in science does not lead to change in a student's understanding. Changing ideas is more likely to occur when students test or model their ideas about scientific phenomena, debate with others and defend their explanations. This allows them to develop ideas more aligned to current scientific thinking.

To develop this approach students need to have the opportunity to:

- Observe and explore a situation, material etc in depth and to raise questions from their exploration.
- Select, plan and investigate one of the questions to find an answer.
- Suggest explanations for their observations and find ways to check and test these ideas – including with science theories.
- Interpret the results from the investigation and communicate the results with others.

This looks very like any of the Sciences 0.1 series investigations – however the starting point requires a greater focus on the observing, exploring and raising questions *before* the planning begins. It is not about a recipe approach; it is about students thinking, relating ideas for science to what they see and measure.

The teacher's role is not at all passive either, for we need to check in continually with students, offering guidance, asking "What would happen if...?" to help maintain student progress. At any stage of this process the teacher must be making assessments of: Where the students are at? Have they made accurate observations? Do they have a testable question? What are their next learning needs? Do they have the science ideas to answer the question? Is there a resource they need?

Think about how this could apply to your next foray into a 0.1 series investigation. How can you engage the students with a context that will interest them where you will not be leading the investigation? How could you provide more flexibility while providing supervision or guidance for your students?

Agriculture and Horticulture alert

Thanks to Mason Summerfield and the team for organising the very successful HATA conference. A great range of ideas were gained from keynote speakers, field trips, and the sharing amongst each other.

Support is available to assist in the building of local clusters to share teaching and learning ideas, cross moderate tasks and write tasks for the aligned standards. Contact Kate Rice or Mike Stone for more information.

All teachers need to refer to the Ag-Hort clarifications of the internal achievement standards published on NZQA website. These provide the interpretations of the standards from a moderation perspective, and tasks should reflect this guidance:

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/ag-and-hort-science/agriculture-and-horticultural-science-clarifications/>.

AS 90918 is the version of Practical Investigation to be used in 2013. The table of requirements in the clarifications provides guidance on making a teacher judgment.

Useful links and resources

Literacy and Numeracy page on NZQA site

There is a new Literacy and Numeracy landing page live on NZQA.

It was developed in order to have all of the information from NZQA and TKI sites accessible in one place - worth bookmarking for easy access.

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/literacy-and-numeracy/>

Upcoming subject association conferences

Biolive

July 14-17
Christchurch
On-line registration now for earlybird at:
www.biolive2013.org.nz

ChemEd

July 14-17
Dunedin
sites.google.com/site/chemednz2013/home

NZIP Physikos conference

Sept 27-30
Nelson
www.eiseverywhere.com/home/62198

Technicians' Conference

Oct 7-9
Rotorua
www.constanz.wikispaces.com

Biology alert

BioLive registrations are now open – Christchurch, July 14 – 17.

Teachers need to refer to the Biology clarifications of the internal achievement standards published on the NZQA website. These provide interpretations of the standards from a moderation perspective, and tasks must reflect this guidance:

- Bio 1.1: Templates can be used for planning only; the final report needs to incorporate the information from the template in paragraph form as the final method used as well as results, discussion and conclusion.
- Bio 1.2: Students need to refine a general question into a specific question that is researched.
- Bio 2.1: Gives directions on planning templates, use of findings, processing data and conclusion content.
- Bio 2.2: Describes the focus and intent of the standard, the variety of articles needed, and the need for biological knowledge and practice at evaluation.

Chemistry alert

ChemEd 2013 Dunedin, July 14-17. Register now and offer to share your great teaching ideas with others by presenting a session too.

All teachers need to refer to the Chemistry clarifications of the internal achievement standards published on the NZQA website. Key points to note:

- Chem 1.2: Intent of this standard is to demonstrate understanding of chemistry in a technological application at Level 6 of the curriculum rather than research. Provide students with sufficient resource material to complete their report. However, they may use own additional material if they wish.
- Chem Level 2 and 3: The “summary of requirements” tables provide useful guidance for making teacher judgments.

Earth and Space Science alert

Currently the interest of ESS teachers in meeting either face-to-face or virtually to share and upskill on aspects of the curriculum is being explored. If you are interested, please email either jenny.pollock@xtra.co.nz or kate.rice@otago.ac.nz

All teachers need to refer to the Earth and Space Science clarifications of the internal achievement standards published on the NZQA website. For Level 2 guidance is provided to assist teachers in making their assessment judgments of student work. Further information will be provided for Level 3 as the need arises. Remember the exemplars on NZQA’s site provide useful guidance and teaching tools for both teachers and students: <http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/earth-and-space-science/levels/>

Physics alert

Look out for information on the NZIP conference, Nelson, 27-30 September.

Check the Physics clarifications of the internal achievement standards published on the NZQA website. These provide the interpretations of the standards from a moderation perspective, and tasks must reflect this guidance. Key points to note are:

- Physics 1.1: Templates can be used, but the focus is on students designing method, collection of primary data, presenting results. The clarification provides excellent guidance for making judgments of student work.
- Remember the moderator’s newsletters also provide useful information on Level 3 Achievement Standards.
- Physics 1.2/2.2 is about *demonstrating understanding*, not research. Guidance should be provided to ensure students can explain the physics behind the application.

Links to moderator newsletters

It is important to keep up with these for latest information on the assessment tasks and achievement standards.

Agriculture/Horticulture

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/ag-and-hort-science/moderator-s-newsletter/march-2013/>

Biology

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/biology/moderator-s-newsletter/march-2013/>

Chemistry

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/chemistry/moderator-s-newsletter/april-2013/>

Earth and Space Science

None published to date.

Physics

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/physics/moderator-s-newsletter/december-2012/>

Science

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/science/moderators-newsletter/february-2013/>

Clarifications

Also refer to the clarifications for science:

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/science/science-clarifications/>

NCEA update

For all science subjects, teachers are now required to modify the exemplar tasks from www.ncea.tki.org.nz to suit a local context to avoid students plagiarising information from the evidence provided. There are some individual exceptions that apply to Chemistry. The NZASE level 1 Science tasks are on a secure site and can be used unmodified.

For information on the NZASE tasks go to www.nzase.org.nz/ncea/

Request for clarification

Moderators are receiving a number of Optional Teacher-selected Evidence (OTSE) requests and "Requests for Clarification" that are in reality the critiquing stage of internal moderation – teachers are sending tasks and are asking 'Are these okay?'

The OTSE moderation process was replaced by a simpler and more direct 'Request for Clarification' from the start of this year (as advised in [SecQual S2012/030](#)). This clarification process provides teachers with the opportunity to ask specific questions of moderators about how to **interpret a standard**. Please refer to the circular for more details. The Request for Clarification **form** can be found at [Forms and documents for schools](#), under External Moderation.

Clarification documents for all sciences

These are essential documents that must be used when developing your student assessment tasks:

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/>

Select **subject**, then under resources for internally assessed subjects open **clarifications** as well as **moderator newsletters**.

In addition, refer to the conditions of assessment under each level of the subject on:

www.ncea.tki.org.nz/Resources-for-aligned-standards/Science

Secondary Student Achievement professional development

The Secondary Student Achievement professional development is funded by the Ministry of Education. The Government goal is that 85% of all 18-year-olds will have achieved NCEA Level 2 or an equivalent qualification by 2017.

To support this, the focus for the Secondary Student Achievement professional development is to work with secondary middle leaders to help raise achievement for all students, and particularly for Māori students, Pasifika students and those with special education needs.

Support is available to all middle leaders in the form of workshops, clusters and e-newsletters in every learning area and in a range of subjects. More intensive, in-depth support is also being provided for selected schools/departments/faculties allocated by the regional Ministry of Education offices.

Important links and resources

The Science Teaching and Learning Guide Part 2

This guide is now live on:

<http://seniorsecondary.tki.org.nz/Science>

The new sections cover learning programme design, connections and pedagogy.

The Agricultural and Horticultural Science Teaching and Learning Guide

The link for this guide:

<http://seniorsecondary.tki.org.nz/Science/Ag-and-hort-science>

National newsletters

These national newsletters are developed for every learning area by National Co-ordinators from The University of Auckland and Te Tapuae o Rehua consortium (University of Canterbury, University of Otago and Te Runanga o Ngāi Tahu).

To download the latest newsletter or for more information about Ministry-funded professional development for secondary middle leaders, visit this page on TKI:

<http://nzcurriculum.tki.org.nz/Secondary-middle-leaders/Professional-learning-and-development>